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U.S. DEPARTMENT OF ENERGY

Best of the Betters: 2020 Better Project and Better Practice Presentations

Wednesday, June 10

11:00 am-12:30 pm ET

Michael Waitek

PepsiCo

Submit Questions
www.slido.com event code **#bbsummit**
then go to room **“Best of the Betters”**

U.S. DEPARTMENT OF ENERGY

Indianapolis Gatorade Cogen - Combined Heat and Power System

Project Designed to lower electricity costs and reduce green house gas emissions – part of PepsiCo's Winning with Purpose initiative

Project Partners – MacAllister Power Systems and Thermal Energy, Inc.

Project Team consisting of PepsiCo corporate sustainability engineering, plant support, contractors

$6M Capital Project for Generators, Heat Recovery and Installation

$1.45MM Annual Utility Savings

$1.0MM Net Savings w/Maintenance Contract

35% Reduction in Greenhouse Gas Emissions – 6% of PepsiCo's 2030 Goal

Project Startup – January 2019

Project Overview

- Three 1700hp natural gas engines turning 1.2MW electric generators – 3.6MW total output
  - Provides ~90% of plants electricity usage
  - Reduces peak demand

World Class Efficiency by Utilizing Heat Recovery

- Heat generated by engines (cooling and exhaust) utilized for Gatorade processing
  - Reduces load on natural gas boilers
  - Reduces overall utility costs
- System Efficiency to Approach 85%
  - Electrical Utility Efficiency ~35%

Project Details

Generators utilize a control system to produce electricity based on plant load

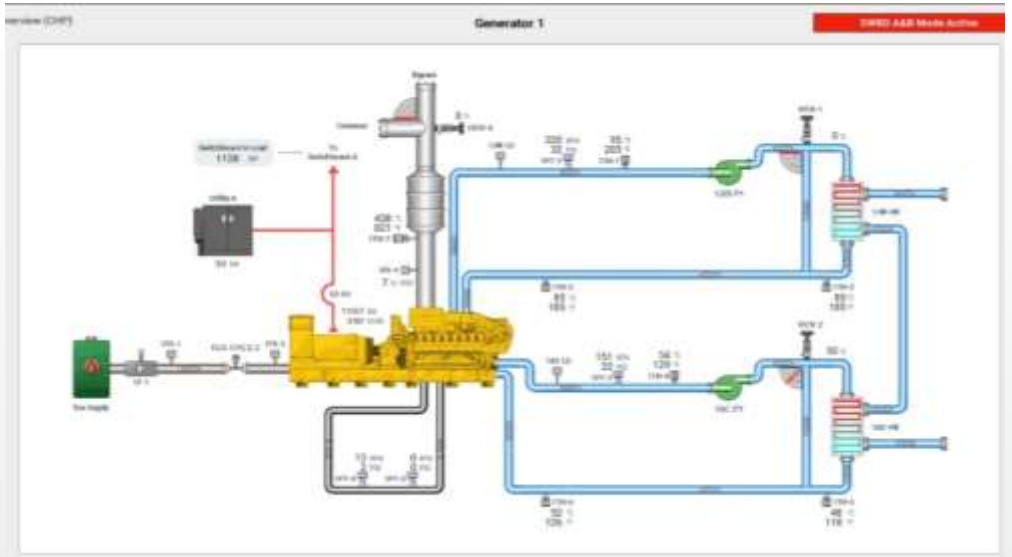
Generators can efficiently run from 600kW to 1200kW

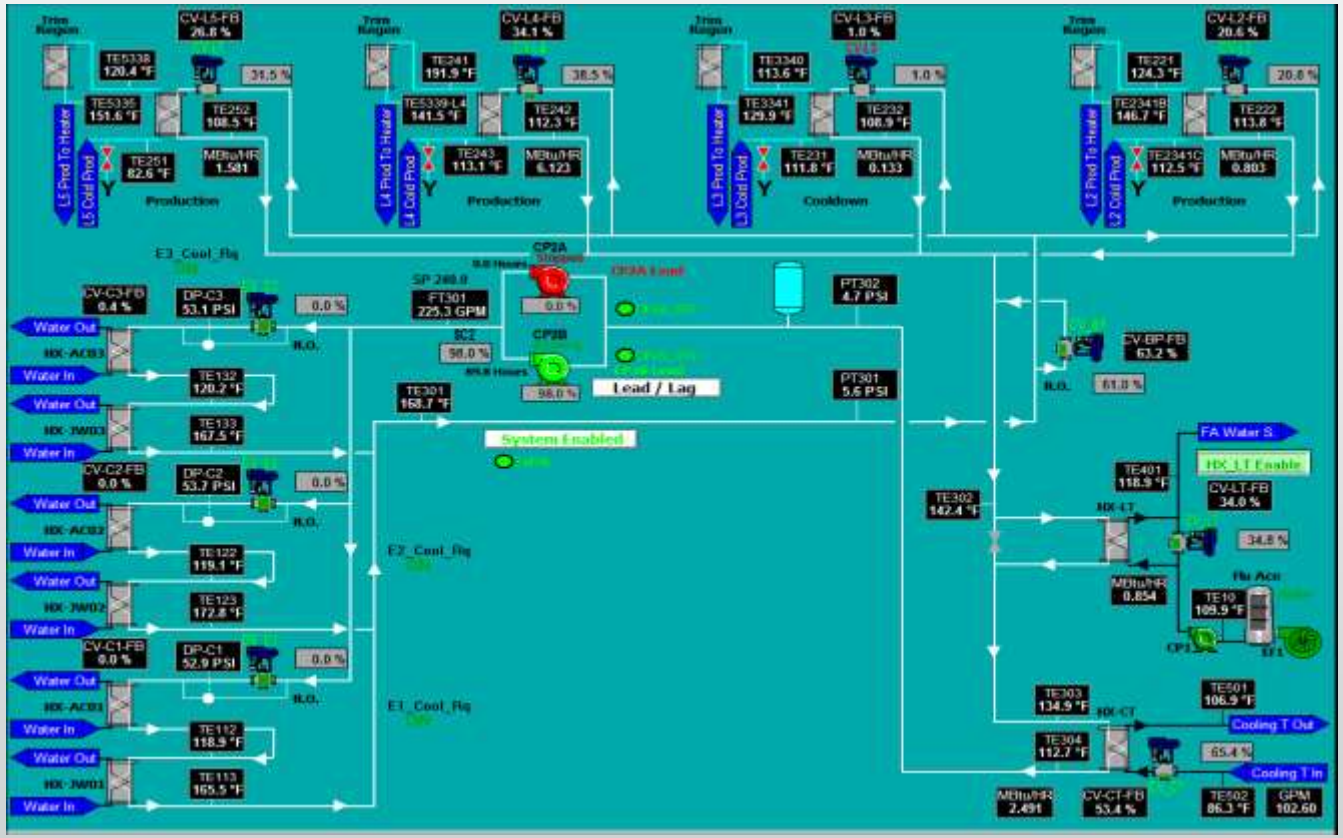
Gatorade is thermally processed – provides large heat sink for engine cooling

Engine cooling is mainly provided by transferring heat to Gatorade

Gatorade can gain up to 40F by utilizing the heat from the engines

Engine Exhaust at ~700F is used to make steam with a converted boiler for additional heat needed for processing





Project Photos

Generator Building

Control Room

Generator Room

Steam Generator

Heat Recovery Pumps and Heat Exchangers